

INTERNATIONAL SEARCH REPORT

PCT/GB 03/02698

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 E21B7/06 E21B17/10 E21B4/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 E21B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, TULSA, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 319 649 A (JETER JOHN D) 16 March 1982 (1982-03-16) the whole document	1-4, 9, 10, 12, 13
X	DE 41 13 986 A (PREUSSAG ERDOEL UND ERDGAS GMB) 12 November 1992 (1992-11-12) the whole document	1
X	US 6 173 794 B1 (VON GYNZ-REKOWSKI GUNTHER ET AL) 16 January 2001 (2001-01-16) abstract; figures 1-9	9, 10
X	US 5 316 093 A (BOULET JEAN ET AL) 31 May 1994 (1994-05-31) the whole document	12, 13
A	---	1
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Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

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- *O* document referring to an oral disclosure, use, exhibition or other means
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- *Z* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the International search

22 January 2004

Date of mailing of the International search report

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INTERNATIONAL SEARCH REPORT

PCT/GB 03/02698

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 817 740 A (BEIMGRABEN HERBERT W) 4 April 1989 (1989-04-04) figures 1-3 -----	12
X	US 5 186 265 A (HENSON RANDY H ET AL) 16 February 1993 (1993-02-16) the whole document -----	12
A	US 5 269 383 A (FORREST JOHN) 14 December 1993 (1993-12-14) column 3, line 55 -column 5, line 25; figures 1C,3 -----	1
A	US 4 361 077 A (MILLS NED D) 30 November 1982 (1982-11-30) the whole document -----	1
A	WO 98 37300 A (RAVENSBERGEN JOHN E ;BJ SERVICES COMPANY U S A (US); PORTMAN LANCE) 27 August 1998 (1998-08-27) figures 4,6 -----	1,12
A	US 5 553 678 A (BARR JOHN D ET AL) 10 September 1996 (1996-09-10) figure 30 -----	1,9,12

INTERNATIONAL SEARCH REPORT

Information on patent family members

PCT/GB 03/02698

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 4319649	A	16-03-1982	NONE			
DE 4113986	A	12-11-1992	DE AU WO	4113986 A1 1657192 A 9219835 A1		12-11-1992 21-12-1992 12-11-1992
US 6173794	B1	16-01-2001	US AU EP NO WO AU EP NO WO	5911284 A 3123200 A 1144795 A1 20012956 A 0036263 A1 8263198 A 0993538 A1 996563 A 9900576 A1		15-06-1999 03-07-2000 17-10-2001 06-08-2001 22-06-2000 19-01-1999 19-04-2000 02-02-2000 07-01-1999
US 5316093	A	31-05-1994	FR CA EP NO	2641315 A1 2006939 A1 0376805 A1 895302 A		06-07-1990 30-06-1990 04-07-1990 02-07-1990
US 4817740	A	04-04-1989	US	5050692 A		24-09-1991
US 5186265	A	16-02-1993	NONE			
US 5269383	A	14-12-1993	NONE			
US 4361077	A	30-11-1982	AU CA DE EP JP WO	7327181 A 1163141 A1 3152095 T0 0053631 A1 57500838 T 8103677 A1		07-01-1982 06-03-1984 23-09-1982 16-06-1982 13-05-1982 24-12-1981
WO 9837300	A	27-08-1998	GB WO US	2338735 A ,B 9837300 A1 2001022241 A1		29-12-1999 27-08-1998 20-09-2001
US 5553678	A	10-09-1996	AU AU AU AU CA CA DE DE DE DE DE DE DE DE DE EP EP EP GB GB GB NO NO	666850 B2 1851192 A 647957 B2 2136992 A 2072228 A1 2077177 A1 69211229 D1 69211229 T2 69219250 D1 69219250 T2 69229963 D1 69229963 T2 0520733 A1 0530045 A1 0677640 A1 2257182 A ,B 2259316 A ,B 2285651 A ,B 922473 A 923369 A		29-02-1996 07-01-1993 31-03-1994 04-03-1993 26-12-1992 01-03-1993 11-07-1996 06-02-1997 28-05-1997 18-12-1997 14-10-1999 20-04-2000 30-12-1992 03-03-1993 18-10-1995 06-01-1993 10-03-1993 19-07-1995 28-12-1992 01-03-1993

INTERNATIONAL SEARCH REPORT

Information on patent family members

PCT/GB 03/02698

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5553678	A	NO 982258 A US 5265682 A	18-05-1998 30-11-1993